

**SOCIAL ECONOMIC DETERMINANTS OF INCOME, SAVINGS AND INVESTMENTS AMONG COCOA FARMERS IN IDANRE LOCAL GOVERNMENT AREA OF ONDO STATE, NIGERIA.**

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**Abstract**

The study evaluated factors influencing savings, income and investment among cocoa farmers in Idanre Local Government Area, of Ondo State. The study identified factors influencing income, savings and investment among the respondents and described the socio economic characteristics as factors that influence the marginal propensity to save using Idanre Local Government as a case study. Descriptive Survey research design was adopted for the study and structured questionnaire was used as an instrument for data collection from 100 cocoa farmers randomly selected from the study area. Descriptive statistics were used to discuss the socio economic characteristics while savings, income and investment models were specified using regression analysis. Regression results showed that age, non farm income, farming experience, farm income and household sizes explained 92% of the variation in the volume of savings among the respondents. Although they all carried the expected positive signs but only age, amount of non farm income and household size were significant at 5%. Results of the investment model showed that interest rates, non farm income, farm income, years of schooling and volume of savings were the significant determinants of the amount invested by the cocoa farmers. It was recommended that credit institutions with low interest rates such as cooperative societies should be encouraged so that farmers would have more access to loan with low interest rate.

**Keywords:** social economic, determinants, income, savings, investments.

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**Introduction**

Cocoa being a major agricultural product remained a major prime source of foreign exchange earnings. Up till now, cocoa is the largest contributor of Nigerian earnings from non-oil exports [Daramola and Okunlola 1999]. The importance of cocoa in Nigerian agricultural production in general and Ondo State in particular comes from three factors: The first major factor is the production opportunity possessed by cash crop farmers in Ondo State. The second factor is the income and employment effects through provision of domestic markets for both food and non-food commodities and thirdly, the ability to generate large amount of foreign exchange earning to finance imports and various developmental projects in the country.

More specifically, cocoa is a source of income to both farmers and government, employment to the youths, raw materials to agro industry and feed to animals among others. So, it is an important perennial tree crop which generates income for the upkeep of the family; to the government, it is a premier cash crop whose exports provides the much needed foreign exchange earnings; to processors/manufacturers, it is the raw materials which produces numerous consumer products; to consumers it is the food

taken for pleasure but which has a high nutritive value that makes it supplement to balanced diet. This implies that cocoa is a source of income to farmers, industrialists and government. The fact that farmers cannot process raw cocoa bean for direct consumption and the abrogation of Cocoa Marketing Board [CMB] in 1989 which gives farmers opportunity to negotiate price makes it an important cash crop to the growers. Cocoa is therefore needed to finance other agricultural enterprises and farmers personal developmental projects.

However the production of this very important crop has been experiencing a downward trend. Nigeria which used to be second largest in the world after Ghana is presently in the fifth position after Cote d'ivoire, Ghana, Indonesia and Cameroun with production of 210 thousand metric tons representing 5.9% of the world production [Wikipedia Organization, 2013]. This gloomy situation has generated some unpleasant concern to the Nigerian economy and therefore calls for an immediate attention of government, individuals and researchers.

The integration of savings and investment programmes into developmental strategies by government goes a long way in addressing cocoa production problems as this is capable of improving resource allocation, promoting equitable income distribution and reducing credit delivery and recovery cost (Adeyemo, 2003).

Savings and investment have a direct bearing on the level of economic activity of farmers in particular and the nation in general. The degree of progress attained will largely depend upon what farmers do with additional income generated from year to year from their farm activities. This stems from the fact that the growth rate in the farming economy largely depends on stock in form of savings for further improvement and expansion of farms. However 44 out of 47 countries in Sub saharan Africa (SSA) countries had a negative savings –investment gap between 1991 and 2008 [ Adelegan , 2009] . Foreign savings is therefore an important source of developmental finance for African countries. According to him, African countries run current accounts deficits as they expand domestic investment beyond the resources available from domestic savers through reliance on foreign savings.

Resulting from the foregoing is the fact that there is an interdependence relationship between income, savings and investment which must be understood and exploited to improve the economic life of cocoa farmers. This is because an adequate integration of savings and investment programmes into development strategies is capable of improving resource allocation, promoting equitable distribution of income and reducing credit delivery and recovery cost. This study is therefore necessary to evaluate factors determining income, savings and investment among cocoa farmers with the expectations that the findings will be useful in proper formulation of cocoa production and marketing policies in the state and in Nigeria

### **Literature Review: Meaning of Savings and Investment**

The part of the income which is not consumed is called savings I e deferred consumption. Ogunfowora [1989] defined savings as act of abstaining from consumption I e funds that an individual holds back out of normal income which may be for short and long term purposes . According to him there is a difference between savings and saving. Saving refers to an activity occurring over time, while savings refer to something that exists at any time i.e. a stock variable. This means that saving is an activity while savings is an outcome. Savings takes place to raise capital, for security

purposes, making money available for future purposes, to enjoy a higher standard of living and to acquire assets. According to Ogunfowora [1989] there are many factors determining savings which include the level of income, rate of interest, environmental factors like the existence or proliferation of financial institutions, psychological factors and government policy.

On the other hand, investment is defined as any use of resources intended to increase future production output or income. Adeyemo (2003) posited that resources devoted to expanding future income and consumption are known as investment. The allocation of these “read” resources (land, labour, capital, management) to future production and consumption is the essence of the process of investments. Bode *et al* (2000) opined that an investment is the current commitment of money or other resources in the expectation of reaping future benefits. For example an individual might purchase share of stock anticipating that the future proceeds from the shares will justify both the time that the money is tied up as well as the risk of the investment.

A farm investment can take three general forms: investment of family labour in activities which directly enhance capital stock of the farm, investment that is opened to the farm family through capital market in which a farmer may seek a financial rate of return on his savings and lastly is off-farm business investment which may include putting money into local retail stores, investment in urban property and various types of marketing activities. Investments made by business firms are governed by the desire to maximize profits while government investment is on social capital and it is not necessarily to make profit but to improve the living conditions of its citizens. According to Ogunfowora [1989] and Adelegan [2011] the major determinants of investment are the amount of income earned, profit realized, amount paid as tax, interest rate, eoples’ expectations especially of a bright business future, business atmosphere especially stable economy, changes in technology, anticipatory demand for output, political atmosphere and expected yield in relation to the cost of the investment. In addition, macroeconomic policies influence the level and efficiency of investment and growth [Easterly and Rebelo, 1993] .

Therefore macroeconomic stability is necessary for the efficient and high level development of capital for the public provision of infrastructural services. On the other hand, very low domestic savings is a major constraint to investment particularly public infrastructural development in African countries irrespective of whether they are large or small countries.

Savings and investments are of great importance in a developing economy like Nigeria. This is because of the direct bearing it has on the level of economic activity of the nation. Similarly, within the agricultural sector, the degree of progress attained will largely depend upon what farmers do with additional incomes generated from year to year from their farm activities. This stems from the fact that the growth rate in the farming economy largely depends on the stock in form of savings for further improvement and expansion of farms.

### **Empirical Studies on Savings and Investment**

The investigations carried out on savings, investment, consumption, expenditure and capital formation in some African countries reveal that different saving capacities do exist. For instance Roberts [1999] in his 3-years study of 230 families in Zambia found that farmers on the average saved more than 30% of their income over a two year period. He concluded that the volume of cash reserves within these households was

greater than could be productively applied to an on farm investment. Shah [2003], using the regression analysis concluded that capital formation depends on the size of the holding, technology and geographical location. Corroborating this was the study of Baidyanah and Suresh [2001] on income. The percentage of income spent on consumption becomes less, and the percentage of income on family living expenses is greater in rural areas than in the urban. As a result of this, rural areas do not have sufficient amenities for savings.

Irving Manroth, [2009] posited that sound macroeconomic policies have been linked with financial sector development, and later with growth. The absence of macroeconomic stability, mainly where inflation is, will result in disincentive to save , and the financial market will make available only short term finance at variable rates, which cannot be used to meet infrastructure projects' need of long term finance at predictable rates. Applegate [2002] found a positive relationship between the stock market variable and the mobility of investment funds to projects with higher than average profit. Wungler [2000] found that countries with developed financial sector increase investment more in their growing sectors and decrease investment more in their declining sector. Adelegan [2011] investigated infrastructural deficiencies and investment in manufacturing firms in Nigeria. The survey covered 100 firms in Lagos and Oyo states. Using regression analysis he found out that there is a positive statistically significant relationship between profit rates, size of the firm and firms investment in plant and equipment implying that bigger firms with a higher profit rate invest more in plant and equipment.

## **Methodology**

### **Study Area and Sampling Technique**

The study was carried out in Idanre Local Government Area of Ondo State. The choice of the study area was born out of its prominence in cocoa production. It is the largest cocoa producing local government in Ondo State. Random sampling was used to select five villages in the study area. Twenty respondents (cocoa farmers) were randomly selected making a total of 100 respondents in all.

### **Method of Data Analysis**

Descriptive statistics such as percentage mean and frequency tables were used. Regression analysis was used to estimate the determinants of savings, income and investment in the study area.

### **Model Specification**

Multiple regression analysis involving the use of Ordinary Least Square [OLS] method was used to estimate the functional relationship between the dependent variables and the set of explanatory variables in separate savings, income and investment models as indicated in equations 1,2 and 3.

#### **A] Savings Model**

$$S = f(x_1, x_2, x_3, x_4, x_5, x_6) \dots + e \text{-----} (1)$$

Where

S = Amount saved in Naira (N)

X = Age of farmers in years

X<sub>2</sub> = Farming experience (years)

X<sub>3</sub> = Amount of non-farm income (N)

X<sub>4</sub> = Farm Income (N)

X<sub>5</sub> = Farm size (ha)  
X<sub>6</sub> = Household size  
E = Error term

### **B] Investment Model**

$$I = f(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8) e \text{ -----(2)}$$

Where:

I= Amount of investment in both farm and off farm (N)

$\beta_1$  = Amount of money borrowed (N)

$\beta_2$  = Interest Rate

$\beta_3$  = Non-farm income (N)

$\beta_4$  = Farm income in Naira

$\beta_5$  = Farm size (Ha)

$\beta_6$  = Years of schooling

$\beta_7$  = Amount of Savings (N)

B<sub>8</sub> = Household size

e = Error term

### **C] Income Model**

$$Y = f(\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, e) \text{ -----(3)}$$

Where

Y = Total income of respondents (N)

$\alpha_1$  = Age of farmers (Yrs)

$\alpha_2$  = Farming experience (yrs)

$\alpha_3$  = Farm Size (ha)

$\alpha_4$  = Household size

$\alpha_5$  = cocoa output (tons)

e = Error term

Four functional forms linear, Cobb Douglas, exponential and semi log were tried and the best fit was chosen based on the following decision criteria:

1. The coefficient of multiple determinations R<sup>2</sup>
2. The relative magnitude to the adjusted R<sup>2</sup>
3. The statistical significance of the estimate coefficient in terms of their magnitude and sign.
4. F-test to test the overall significance of the whole function

## **Results and Discussion**

### **Socio-Economic Characteristics of the Respondents**

The socio-economic characteristics of the respondents are presented in table 1. The Cocoa farmers in the study area were within different age brackets. Thirty percent (30%) were less than 40years, 29% were above 50years. Although 11% of them did not have formal education, yet the education distribution would encourage the use of modern farm inputs [Table 1]. The household sizes were large with 40% of them having more than 10 household members. Although this will increase family labour at the same time it would increase family consumption expenditure. The cocoa farmers could be classified as small based on the classification of Olayide *et al* (1980) that farmers with less than 5ha are small, between 5.0-10.0 ha, medium and above 10.0ha large. All the cocoa farmers had access to different sources of credit with the formal source [banks] having the largest proportion because of the respondents level of education. Besides, cocoa farming is relatively capital intensive and would require a

reliable finance base. Twenty nine (29%) relied on personal savings while only 5% patronized money lenders probably because of high interest rate.

**Table 1: Socio-Economic Characteristics of Respondents**

Age (years)	Frequency	Percentage
20-24	1.0	1.0
25-29	3.0	3.0
30-34	14	14.0
35-39	12	12.0
40-44	11	11.0
45-49	18	18.0
50-54	21	21.0
55-59	13	13.0
60 and above	7	7.0
<b>Total</b>	<b>100</b>	<b>100.0</b>
<b>Educational Level</b>		
Primary	25	25.0
Secondary	24	24.0
Tertiary	32	32.0
Adult-Literacy Class	8	8.0
No Formal Education	11	11.0
<b>Total</b>	<b>100</b>	<b>100.0</b>
<b>Household Size</b>		
Less than five	9	9.0
5-10	51	51.0
11-15	12	12.0
16-21	21	21.0
Above 21	7	7.0
<b>Total</b>	<b>100</b>	<b>100.0</b>
<b>Credit Sourcing</b>		
Age (years)	Frequency	Percentage
Bank Loan	31	31.0
Personal Savings	29	29.0
Friends and relatives	3	3.0
Licensed buying agents	20	20.0
Money lenders	5	5.0
Cooperatives	12	12.0
<b>Total</b>	<b>100</b>	<b>100.0</b>

**Source:** Data Analysis

### Savings Model

The coefficient of multiple determination [r<sup>2</sup>] value of 0.92 indicated that 92% of total variation in the respondents income was explained by the independent variables while the remaining 8% unexplained variation probably were due to random error and the influence of omitted variables which could also have provided further explanation on the dependent variable. The regression equation is presented in equation 4.

$$S = 1.827 + 0.123x_1 + 0.208x_2 + 0.142x_3 + 0.134x_4 + 0.191x_5 + 0.170x_6 \text{ ----- (4)}$$

(0.763) (0.041) (0.223) (0.064) (0.313) (0.270) (0.081)

\*Estimate is significant at 5% level of significance.



However, contrary to expectation, the coefficient of household size was positive probably because of the use of family labour that was prevalent in the study area.

### Investment Model

As indicated in equation (6) the estimated regressors: amount of money borrowed ( $\beta_3$ ), farm income ( $\beta_4$ ), farm size ( $\beta_5$ ), and years of schooling ( $\beta_6$ ), volume of savings ( $\beta_7$ ) and household size ( $\beta_8$ ) accounted for 72%. Except household size, all the explanatory variables were significant at 5% suggesting that they are the significant determinants of the amount invested by cocoa farmers in the study area. (Equation 6)

$$t = 2.201 + 0.132\beta_1 + 2.417\beta_2 + 4.734\beta_3 + 0.253\beta_4 + 2.633\beta_5 + 6.147\beta_6 + 5.049\beta_7 - 0.213\beta_8$$

\*       \*       \*       \*       \*       \*       \*

$$(0.563) (0.067) (0.093) (0.081) (0.035) (0.096) (0.144) (0.097) (0.012)$$

The figures in parentheses are t values of the regression coefficients and Statistical significant at 5%

The adjusted  $R^2$  for the estimated regression shows that 72% variation in the amount invested by the cocoa farmers is explained by the explanatory variables. As indicated in equation 6, all the regressors included in the regression analysis had positive coefficient except household size. The implication is that interest rate, level of income from non farm sector, annual income from cocoa, farm size, level of education and volume of savings (N) had positive signs carried by the estimated coefficients meaning a direct relationship with the amount invested such that an increase in the value of any of these regressors will contribute positively to the amount invested by the cocoa farmers.

### Conclusion and Policy Implications

This study had estimated factors influencing savings, income and investment behaviour of cocoa farmers. The factors particularly farm size, interest rate on loan and household sizes which were significant determinants of investment should be seriously addressed if the cocoa farmers are to be freed from the cycle of poverty in which Nigeria small scale farmers are entrenched. Equally worrisome is the contribution of non-farm income to savings and investment as indicated in equations (5) and (6) which imply that likelihood diversification of contribution of this explanatory variable could constitute a serious threat to cocoa farming in the state.

It is important that government as a matter of urgency, evolve appropriate policies that will enable farmers increase their cultivated land area and establish credit institutions that would create easy access to farm loans at affordable interest rate. This will sustain farmers' interest in cocoa farming and reduce their attention/dependence on non-farm activities. Also since savings is a significant determinant of investment, cocoa farmers should therefore be organized into cooperatives for credit and savings mobilization. This would discourage money squandering characterized of cocoa farmers at the peak of production usually in December or Christmas times. Such savings can be used for laudable and profitable projects that would improve their economy.

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